

Patent claims:

1. Method of controlling the process conditions, in particular the temperature, in a reactor (1) of a plant into which, in particular, granular material is introduced and transported through a conveying line (14) to the reactor (1), characterized in that the material quantity transported in the conveying line (14) is determined and is used as control variable and/or disturbance variable for controlling the process conditions, in particular the temperature.

2. Method according to claim 1, characterized in that the material quantity in the conveying line (14) is controlled to a predeterminable value.

3. Method according to claim 2, characterized in that the material quantity in the conveying line (14) is controlled by a conveyor (27, 33), with which the material is introduced into the plant, in particular by varying the rotational speed of a material-charging screw (30) and/or by a weighfeeder (34) upstream of the material-charging screw (30).

4. Method according to one of the preceding claims, characterized in that the heat supply to the reactor (1) depends on the material quantity determined.

5. Method according to claim 4, characterized in that the heat supply is effected by burning fuel in the reactor (1) and the fuel feed is controlled for controlling the heat supply.

6. Method according to one of claims 4 or 5, characterized in that the reactor temperature is measured in the reactor (1) and the heat supply additionally depends on the reactor temperature determined.

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7. Method according to one of claims 4 to 6, characterized in that the time from the determination of the material quantity until the feeding into the reactor (1) is taken into account in the control of the heat supply.

5 8. Method according to one of the preceding claims, characterized in that a material discharge, for example via a bypass line (24), between the determination of the material quantity and the feeding into the reactor (1) is determined if need be and is taken into account in the control in particular of the material quantity and/or of the heat supply.

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9. Method according to one of the preceding claims, characterized in that the material is dried and/or preheated before the determination of the material quantity in the conveying line (14).

15 10. Method according to one of the preceding claims, characterized in that the material quantity of the material fed to the reactor (1) is determined by measuring the pressure and/or the pressure loss in a conveying line (14) upstream of the reactor (1), in particular in an airlift (13).

20 11. Method according to one of the preceding claims, characterized in that a gas/solid suspension forms in the reactor (1), for example as a circulating fluidized bed.

25 12. Plant for the heat treatment of material fed to a reactor (1), in particular for carrying out the method according to one of Claims 1 to 11, having a conveying line (14) for the transport of granular material to the reactor (1) and having at least one control (5, 31), characterized by a measuring device (12) which is connected to the control (5, 31) and is intended for determining the material quantity of the material transported in the conveying line (14) to the reactor (1).

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13. Plant according to claim 12, characterized in that the conveying line (14) is a fluid-pressure conveying line, in particular a preferably perpendicularly arranged rising line of an airlift (13).

5 14. Plant according to claim 12 or 13, characterized in that the measuring device (12) is a differential-pressure measuring device for measuring the differential pressure over the conveying line (14).

10 15. Plant according to one of claims 12 to 14, characterized in that the control is a temperature control (5) and/or a material-charge control (31).

16. Plant according to claim 15, characterized in that a temperature sensor (8) connected to the temperature control (5) is arranged in the reactor (1).

15 17. Plant according to claim 15 or 16, characterized in that the temperature control (5) has a control element (6) for controlling a fuel mass flow, directed to the reactor (1) for the combustion, on the basis of the determined material quantity and/or the measured reactor temperature.

20 18. Plant according to one of claims 15 to 17, characterized by a conveyor (27, 33) which is connected to the material-charge control (31) and is intended for the controlled introduction of material into the plant, so that the material quantity in the conveying line (14) can be set to a predeterminable value.

25 19. Plant according to one of claims 12 to 18, characterized by at least one drying device (18, 26) upstream of and/or downstream of the conveying line (14).